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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,575	01/10/2007	Gregory Beylkin	3555	1721

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EXAMINER	
CHARIOUI, MOHAMED	

ART UNIT	PAPER NUMBER
2857	

MAIL DATE	DELIVERY MODE
11/01/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/582,575	BEYLKIN, GREGORY	
	Examiner	Art Unit	
	Mohamed Charioui	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 January 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 June 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP 608.01(o). Support for the limitation "the data samples are aliased" of claim 22 is not found in the specification.

2. The disclosure is objected to because of the following informalities: Fig. 7 is listed in the brief description of drawings, Detailed Description does not contain explanation of Fig. 7 and no Fig. 7 is found in the drawings submitted 6/8/06. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 7, 12, 13, 15-20 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Eddy (U.S. patent Number 5,394,349).

As per claim 1, Eddy teaches obtaining a set of data samples representing an image (see col. 6, lines 50-55); generating a set of nodes in a generalized Gaussian quadrature, performing an interpolation of the data samples using the nodes as interpolation points, wherein the interpolation is defined as a linear combination of a family of bandlimited orthogonal basis functions (see col. 7, lines 9-35).

As per claim 2, Eddy further teaches that that the generalized Gaussian quadrature is selected in accordance with an accuracy requirement (see col. 6, lines 30-52).

As per claim 3, Eddy further teaches that a bandwidth of the generalized Gaussian quadrature is selected so as to optimize accuracy of the interpolation (see col.7, lines 9-21).

As per claim 4, Eddy further teaches that the Gaussian quadrature is selected to have a number of nodes that optimizes accuracy of the interpolation (see col. 6, lines 30-52).

As per claim 7, Eddy further teaches that the generalized Gaussian quadrature is generalized Gaussian quadrature of exponentials (see col. 6, lines 30-60).

As per claim 12, Eddy further teaches that the data samples are arranged in proximity to nodes of a generalized Gaussian quadrature of exponentials (see col. 6, lines 30-60).

As per claims 13 and 19, Eddy teaches obtaining a set of data samples representing one or more physical measurements (see col. 6, lines 50-55); generating a set of nodes in a generalized Gaussian quadrature, wherein the generalized Gaussian quadrature is selected in accordance with given accuracy and bandwidth requirements, and performing an interpolation of the data samples using the nodes as interpolation points, wherein the interpolation is defined as a linear combination of a family of bandlimited orthogonal basis functions (see col. 6, lines 15-64 and col. 7, lines 9-35).

As per claims 15-18, Eddy teaches that individual ones of the data samples are spatially related to other data samples according to a particular geometry, irregular geometry, surface or path (see col. 5, line 55 to col. 6, line 64).

As per claim 20, Eddy teaches obtaining a set of data samples representing a signal (see col. 6, lines 50-55 and col. 4, lines 35-65); generating a set of nodes in a generalized Gaussian quadrature, wherein the generalized Gaussian quadrature is selected in accordance with given accuracy and bandwidth requirements, and performing an interpolation of the data samples using the nodes as interpolation points, wherein the interpolation is defined as a linear combination of a family of bandlimited orthogonal basis functions (see col. 6, lines 15-64 and col. 7, lines 9-35).

As per claim 22, Eddy teaches that the data samples are aliased (see col. 5, lines 55-67).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 5, 8 and 21** are rejected under 35 U.S.C. 103(a) as being unpatentable over Eddy in view of Lechleider (U.S. Patent Number 5,440,594).

As per claims 5 and 8, Eddy teaches the system as stated above except that the family of bandlimited orthogonal basis functions includes a plurality of prolate spheroidal wave functions.

Lechleider teaches this feature (see col. 3, lines 15-25). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate Lechleider's teaching into Eddy's invention because it would better approximate the transmitted data. Therefore, the optimal results would be received.

As per claim 21, Eddy teaches the system as stated above except that the samples have been sampled at a sampling rate that is less than a corresponding Nyquist rate for the signal.

Lechleider teaches this feature (see col.1 lines 40-52 and col. 2, lines 15-33). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate Lechleider's teaching into Eddy's invention because it would maintain the energy transmitted. Therefore, noise in the transmitted signal would be minimized and the shape of the received signal would be optimal.

5. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over Eddy in view of Lechleider and further in view of Hajrudin O. Beca (An orthogonal set based on Bessel functions of the first kind, 1980, Elektrotehn. Fak, pages 85-90.)

Eddy in view of Lechleider teach the system as stated above except that the plurality of prolate spheroidal wave function includes at least one of an exact prolate spheroidal wave function and an approximate prolate spheroidal wave function.

Beca teaches this feature (see col. 3, lines 15-25). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate Beca's teaching into Eddy in view of Lechleider's teaching invention because it would better approximate the transmitted data. Therefore, the optimal results would be received.

6. **Claims 9-11 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Eddy.

As per claims 9 and 14, Eddy teaches the system as stated above except that the image represents seismic measurements.

It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ2d 1647 (1987).

As per claim 10, Eddy teaches the system as stated above except that the image derived from medical imaging apparatus.

It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ2d 1647 (1987).

As per claim 11, Eddy teaches the system as stated above except that the image derived from a camera.

It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ2d 1647 (1987).

Contact information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohamed Charioui whose telephone number is (571) 272-2213. The examiner can normally be reached Monday through Friday, from 9 am to 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eliseo Ramos-Feliciano can be reached on (571) 272-7925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mohamed Charioui

10/27/07

10/29/07

ELISEO RAMOS-FELICIANO
SUPERVISORY PATENT EXAMINER